

### **REMARKS**

Claims 73-116, 123-141, and 143-155 were pending in this application prior to the office action. By this amendment, claim 73 is amended. Thus, claims 73-116, 123-141, and 143-155 remain pending. In view of the above amendments and the following remarks, Applicants respectfully request reconsideration and allowance of the application.

Claims 73-79 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. In particular, the Examiner asserts that these claims recite that the “semiconductor island includes a nickel at a concentration of  $5 \times 10^{17} \text{ cm}^{-3}$  or less,” which is not supported by the Specification. Instead, the Examiner asserts that the original specification only provides support for  $5 \times 10^{17} \text{ cm}^{-3}$  or less. Accordingly, claim 73 is amended herein to recite that the “crystalline semiconductor island includes a nickel at a concentration of  $5 \times 10^{17} \text{ cm}^{-3}$  or less,” which is clearly supported by the original specification. Thus, Applicants respectfully request that this rejection be reconsidered and withdrawn.

In addition, claims 73-116, 123-141, and 143-155 stand rejected under 35 U.S.C. § 103(a) as being obvious over Zhang et al. (U.S. Patent No. 5,563,426), and claims 73-86, 93-98, 105-110, 129-136, 138, 140, 144-148, 150 and 153 stand rejected under 35 U.S.C. § 103(a) as being obvious over Zhang in view of any one of JP 6-140631, JP 6-037112, US 5273921, or US 5207863.

In making these rejections, the Examiner asserts that Zhang teaches, in col. 6, lines 19-39, that the island includes a nickel at a concentration of  $5 \times 10^{17} \text{ cm}^{-3}$  or less (Ni starts with between 0.005 atomic percent and less than 1 atomic percent, since the Ni proceeds along the crystallization reaction, after the crystallization takes place the amount of Ni in the island is less than the starting amount, and thus less than the claimed amount). In general, it appears that the Examiner is asserting that the Ni in the starting film was typically 0.005 atomic percent and less than 1 atomic percent, and that any Ni that reached the end of the crystallization was removed. Thus, the Examiner appears to be taking the position that, in the island which exists after crystallization, the concentration of Ni will be less than the claimed amount.

However, Applicants respectfully disagree with the Examiner's assertions in this respect. Contrary to the Examiner's assertions, Zhang, in Col. 6, lines 19-39, does not disclose that the initial concentration of Ni in the *starting* silicon film is more than 0.005 atomic percent and less than 1 atomic percent.

Instead, Applicants respectfully contend that Zhang clearly discloses, in Col. 6, lines 35-39, that the final concentration of Ni in the crystallized silicon film, *after* the concentration of Ni is reduced by treating at 400°C to 600°C in an atmosphere containing chlorine, is more than 0.005 atomic percent and less than 1 atomic percent, which is well above the concentration recited in the claims. Thus, Applicants submit that the final concentration of Ni in the crystallized silicon film disclosed by Zhang is more than 0.005 atomic percent and less than 1 atomic percent.

Applicants further submit that this concentration of Ni is equivalent to a final concentration in the crystallized silicon film of between  $5 \times 10^{19} \text{ cm}^{-3}$  and  $1 \times 10^{22} \text{ cm}^{-3}$ , since the known atomic density of Si is  $1 \times 10^{22} \text{ cm}^{-3}$ .

The claimed concentration of Ni in the crystalline semiconductor island (i.e.  $5 \times 10^{17} \text{ cm}^{-3}$  or less) does not overlap, or fall within, any part of the Ni concentration of  $5 \times 10^{19} \text{ cm}^{-3}$  and  $1 \times 10^{22} \text{ cm}^{-3}$  disclosed by Zhang. To the contrary, the concentrations are significantly different.

Therefore, Applicants respectfully submit that Zhang fails to disclose, suggest, or render obvious at least the claimed feature that the "crystalline semiconductor island includes a nickel at a concentration of  $5 \times 10^{17} \text{ cm}^{-3}$  or less", as recited in each of independent claims 73, 80, 87, 93, 99, 105, 111, 123 and 129, and Zhang fails to disclose, suggest, or render obvious, under 35 U.S.C. § 103(a), the invention recited in claims 73, 80, 87, 93, 99, 105, 111, 123 and 129, and all claims dependent thereon.

Accordingly, Applicants respectfully request that the rejection of claims 73-116, 123-141, and 143-155 under 35 U.S.C. § 103(a) as being obvious over Zhang be reconsidered and withdrawn. Moreover, as none of JP 6-140631, JP 6-037112, US 5273921, or US 5207863 overcome the deficiencies of Zhang described above, Applicants also respectfully request that

the rejection of claims 73-86, 93-98, 105-110, 129-136, 138, 140, 144-148, 150 and 153 under 35 U.S.C. § 103(a) as being obvious over Zhang in view of any one of JP 6-140631, JP 6-037112, US 5273921, or US 5207863 be reconsidered and withdrawn as well.

In view of the foregoing, it is submitted that the present application is in condition for allowance and a notice to that effect is respectfully requested. If, however, the Examiner deems that any issue remains after considering this response, the Examiner is invited to contact the undersigned attorney to expedite the prosecution and engage in a joint effort to work out a mutually satisfactory solution.

**Except** for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. §§ 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 19-2380. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. § 1.136(a)(3).

Respectfully submitted,

Date: June 28, 2007 \_\_\_\_\_

/Stephen M. Hertzler, Reg. No. 58,247/  
Stephen M. Hertzler

NIXON PEABODY LLP  
Suite 900, 401 9<sup>th</sup> Street, N.W.  
Washington, D.C. 20004-2128  
(202) 585-8000